IN THE CLAIMS

Please amend the claims as indicated in the following listing of claims, which replaces all previous listings of claims.

1. - 68. (Cancelled)

69. (Currently Amended) A method of enhancing a nucleic acid polymerase reaction comprising:

(a) forming a nucleic acid polymerase reaction composition comprising:

(i) a nucleic acid

(ii) at least one nucleic acid polymerase selected from a Pfu DNA polymerase, an exo$^-$ Pfu DNA polymerase, a Pwo DNA polymerase, a Vent DNA polymerase, a Deep Vent DNA polymerase, a JDF3 DNA polymerase, and an ES4 DNA polymerase, and

(iii) a P45 protein, wherein the P45 protein is in monomeric, dimeric, or multimeric form, and wherein the P45 protein is produced from a cell containing a DNA construct comprising a sequence encoding polymerase enhancing factor protein P45 operably linked to an expression vector, and wherein the P45 protein comprises an amino acid sequence represented by the sequence of SEQ ID NO:72, and

(b) incubating the nucleic acid polymerase reaction composition under conditions allowing a nucleic acid polymerase reaction, wherein the P45 protein enhances the nucleic acid polymerase reaction.

70. (Previously Presented) A method of enhancing a nucleic acid polymerase reaction as claimed in claim 69, wherein the P45 protein is present in a polymerase enhancing factor complex.

71. (Cancelled)

72. (Currently Amended) A method for controlling the activity of a polymerase in a nucleic acid polymerase reaction, comprising:

(a) forming a nucleic acid polymerase reaction composition comprising:

(i) a nucleic acid

(ii) at least one nucleic acid polymerase selected from a Pfu DNA polymerase, an exo$^-$ Pfu DNA polymerase, a Pwo DNA polymerase, a Vent DNA polymerase, a Deep Vent DNA polymerase, a JDF3 DNA polymerase, and an ES4 DNA polymerase, and

(iii) a polymerase enhancing factor activity, wherein the polymerase enhancing factor activity comprises an amino acid sequence represented by the sequence of SEQ ID NO:72,

and wherein the the polymerase enhancing activity changes the amount of dUTP present or generated during the reaction, and

(b) incubating the nucleic acid polymerase reaction composition under conditions allowing a nucleic acid polymerase reaction, wherein changing the amount of dUTP present or generated during the reaction controls the activity of the polymerase in the polymerization reaction.

73. (Cancelled)

74. (Previously Presented) A method according to claim 72, wherein the polymerase enhancing factor activity comprises a P45 protein, wherein the P45 protein is in monomeric, dimeric, or multimeric form, and wherein the P45 protein is produced from a cell containing a DNA construct comprising a sequence encoding polymerase enhancing factor protein P45 operably linked to an expression vector.

75. - 94. (Cancelled)